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TEST METHODS TO CHARACTERIZE THE MECHANICAL PROPERTIES OF THE INTERPHASE

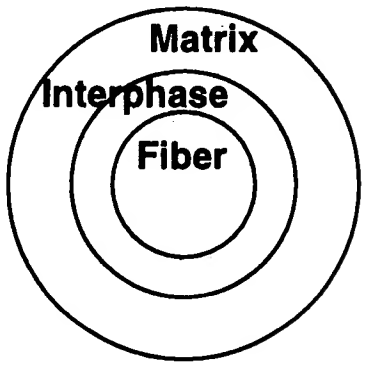
Macromechanical
- **Hopkinson bar technique**
- **Gas gun**
- **Plate impact**
- **•Weight drop, etc**

(a) (Prior Art)

Dynamic

Micromechanical
- *•New test method*

(d)



Macromechanical
- **Short beam shear**
- **Flexural bending, etc.**

(b) (Prior Art)

Quasi-static

Micromechanical
- **•Single fiber fragmentation**
- **•Fiber pull-out**
- **•Microindentation, etc.**

(c) Prior Art

Fig. 1

SCHEMATIC OF THE DYNAMIC INTERPHASE - LOADING APPARATUS (DILA)

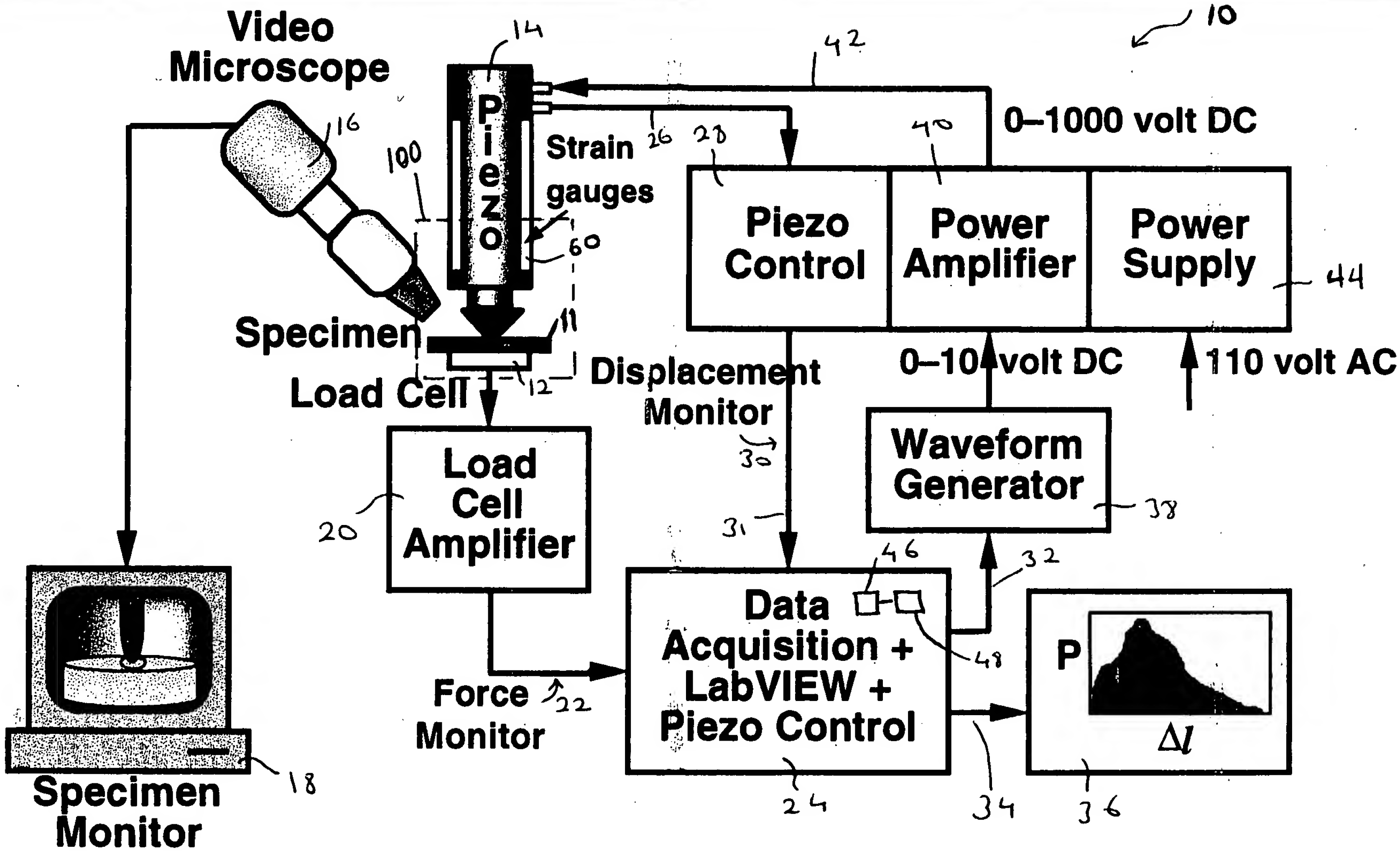


Fig. 2

FORCE - DISPLACEMENT RESPONSE OF THE FIBER/MATRIX INTERPHASE

Material : Glass-Fiber / Epoxy-Amine Composite Interphase

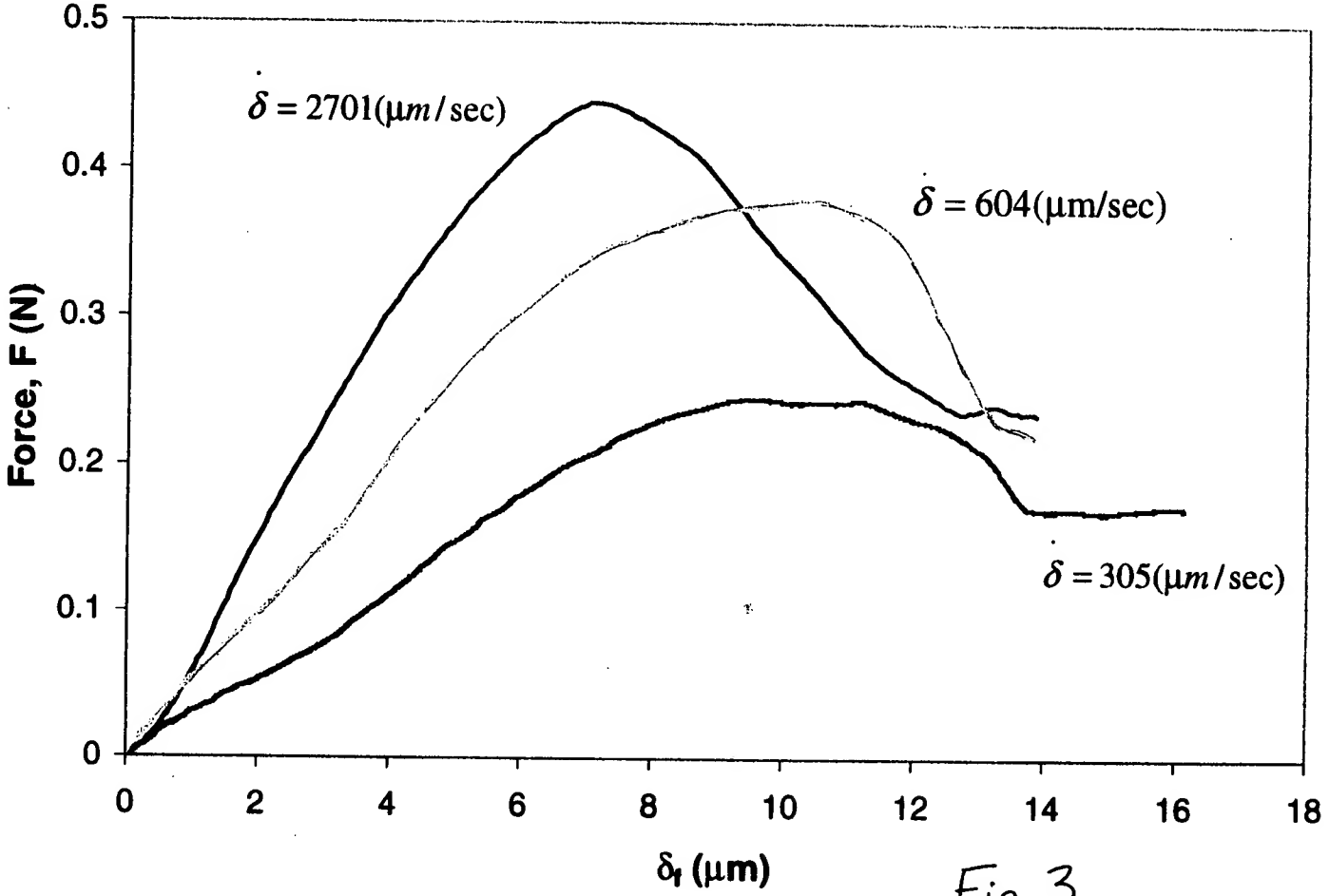


Fig. 3

FORCE RESPONSE OF THE FIBER/MATRIX INTERPHASE AS A FUNCTION OF TIME

Material : Glass-Fiber / Epoxy-Amine Composite Interphase

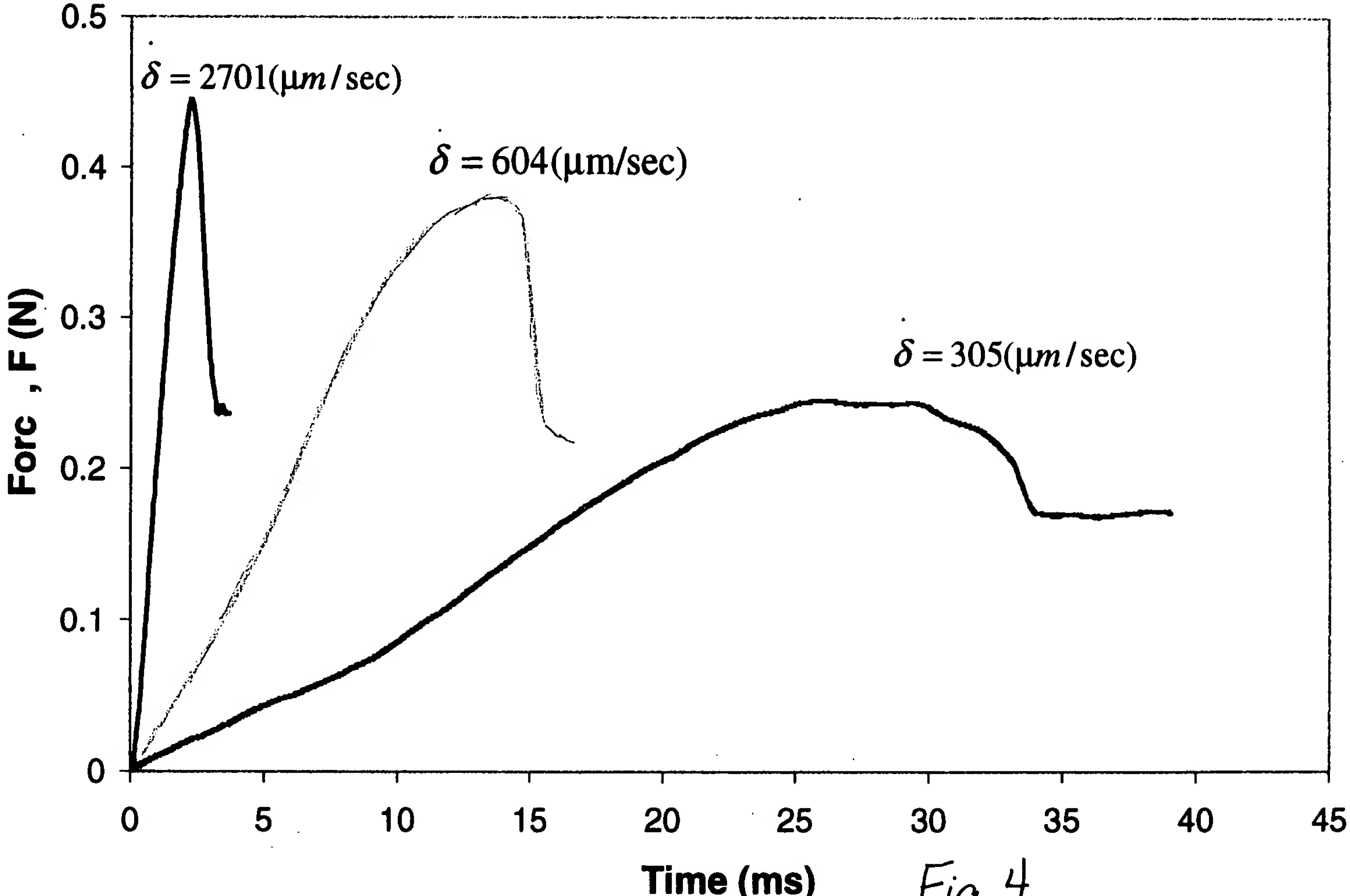


Fig. 4

DISPLACEMENT OF THE FIBER AS A FUNCTION OF TIME

Material : Glass-Fiber / Epoxy-Amine Composite Interphase

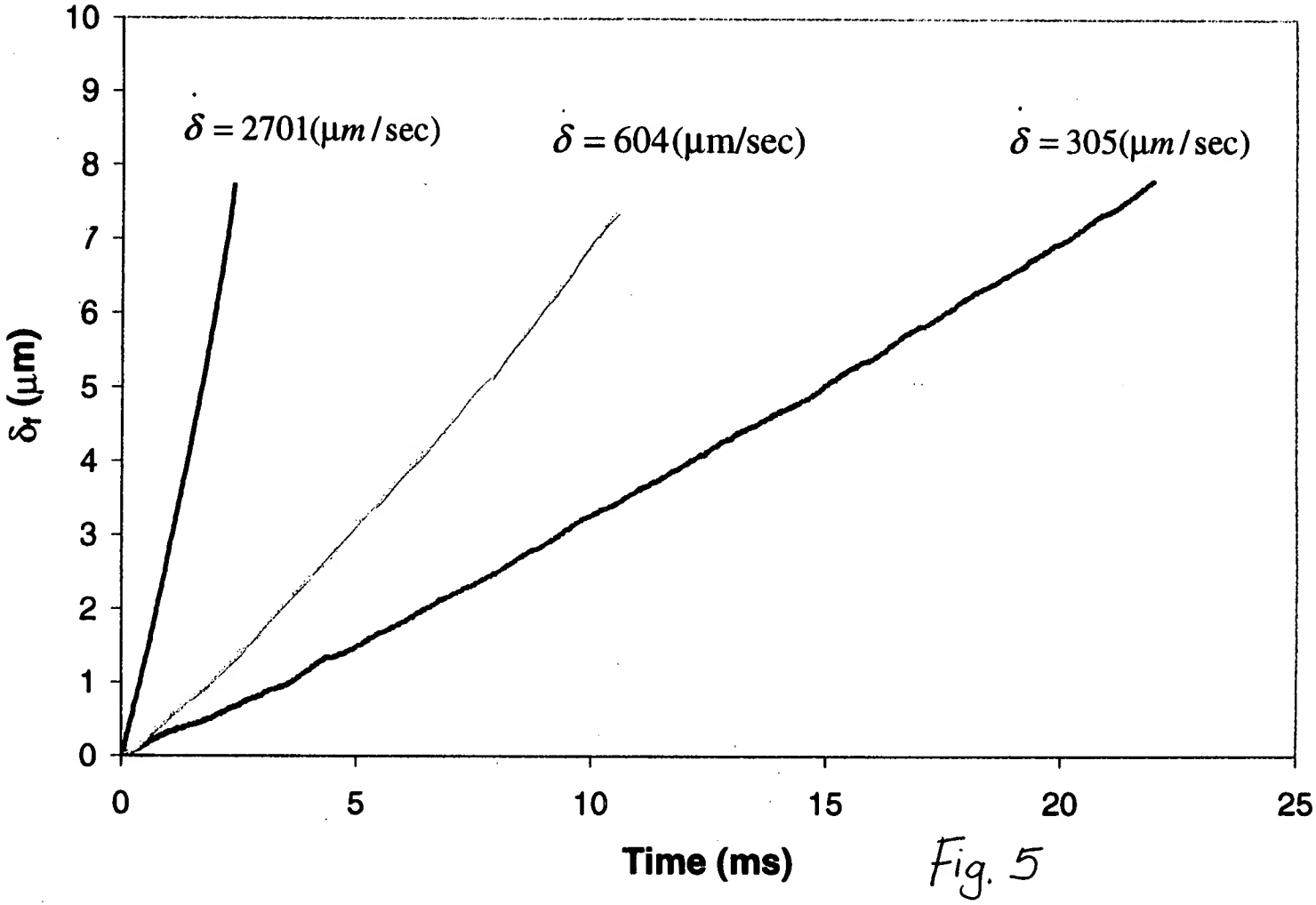


Fig. 5

DISPLACEMENT RESPONSE OF PIEZOELECTRIC ACTUATOR

$$t = RC \ln\left[1 - \frac{U_c(t)}{U_o}\right]$$

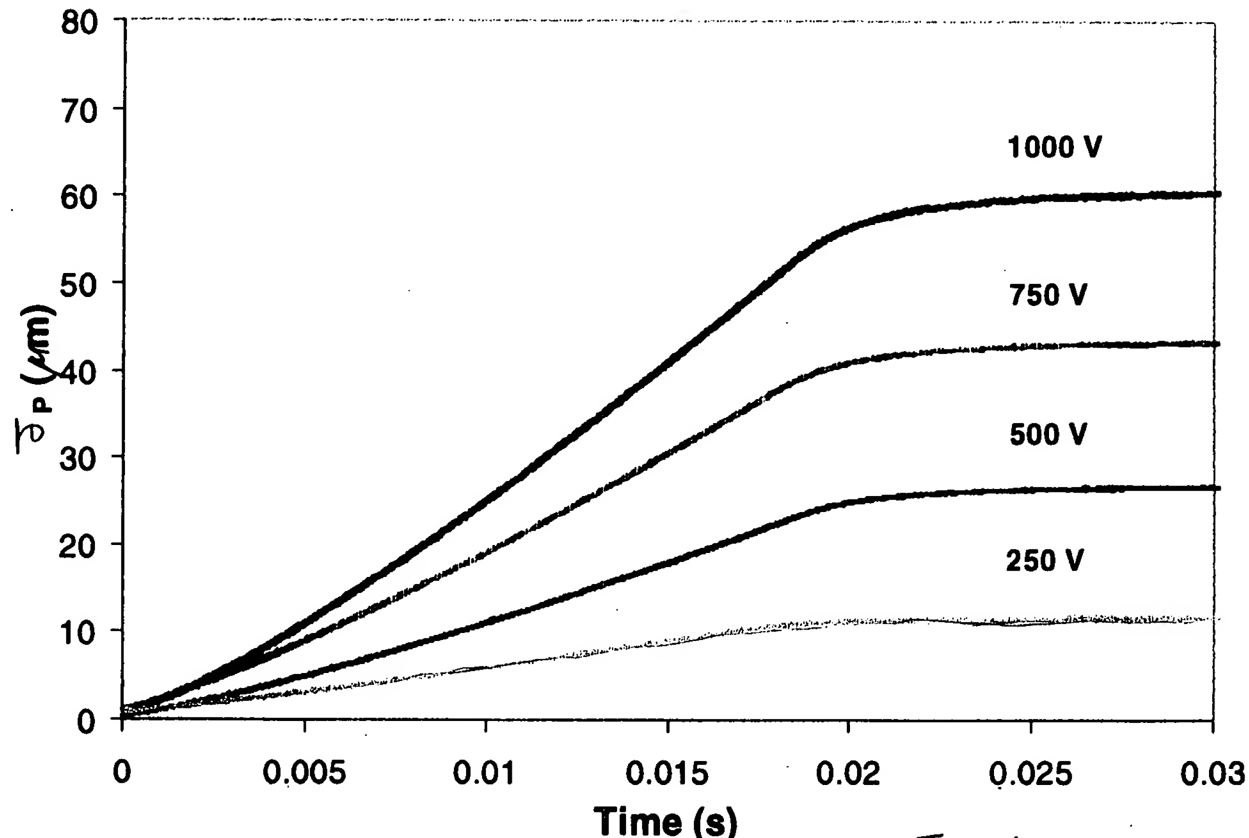


Fig. 6

TEST CONFIGURATION AND MICRO - DEBONDING PROCESS

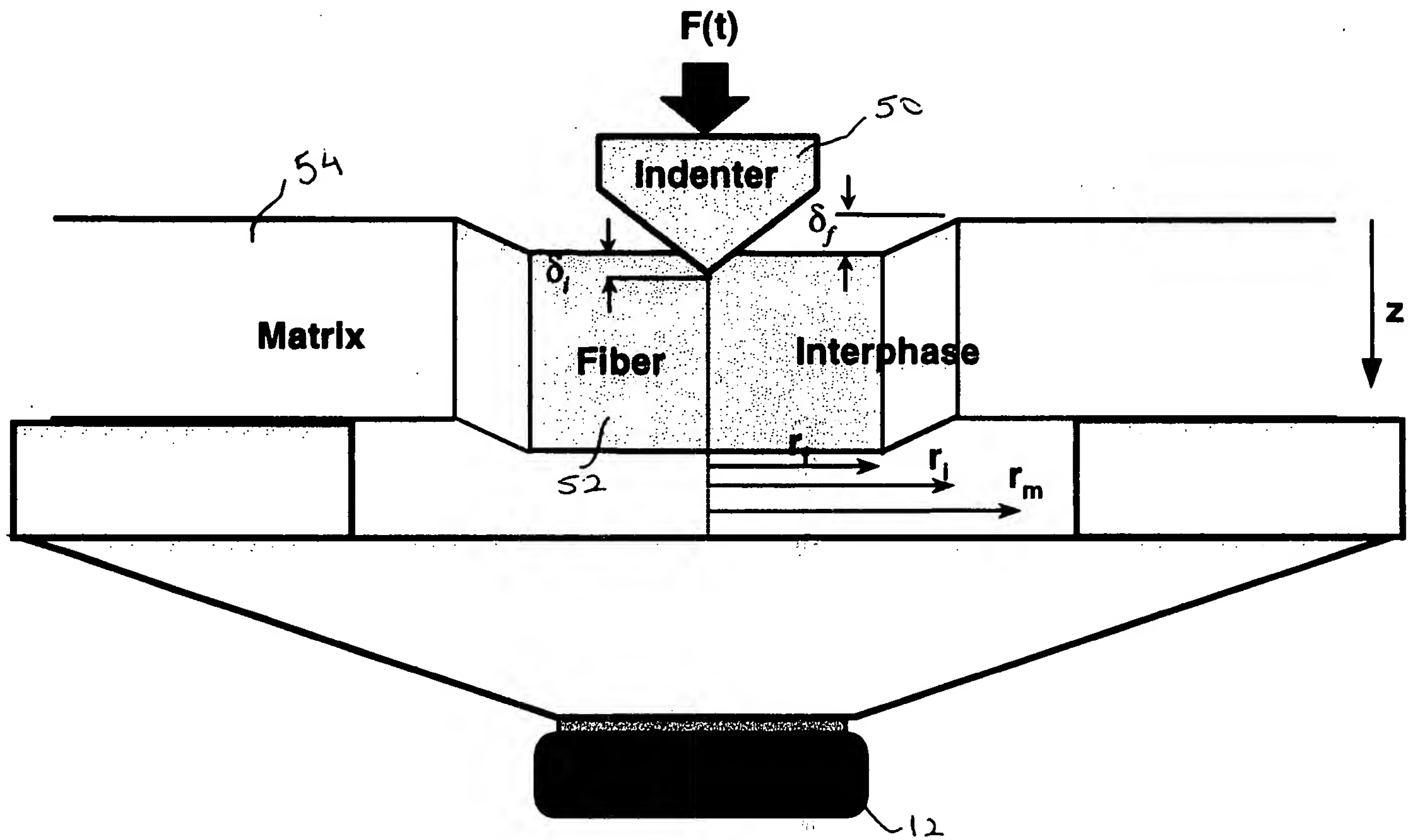


Fig. 7